Xerox Docket No.: D/98719

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

#16
K DAVIS
4-14-04

In re the Application of:

Roger MARKHAM

Application No.: 09/433,586

Filed: November 4, 1999 Docket No.: 103245

For: APPARATUS AND METHOD FOR COUNTING PIXELS IN PRINT DATA

BRIEF ON APPEAL

Appeal from Group 2622

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I. INTRODUCTION

This is an Appeal from a final Office Action mailed November 5, 2003 finally rejecting claims 1-19 and finally objecting to claims 20 and 21.

A. Real Party In Interest

The real party in interest for this Appeal is Xerox Corporation, by way of an Assignment recorded at Reel 010378, Frame 0938.

B. Related Appeals and Interferences

There are presently no appeals or interferences, known to Appellant, Appellant's attorney or the Assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

C. Status of Claims

Claims 1-21 are pending. Claims 1-19 stand finally rejected and claims 20-21 stand finally objected to on appeal. Of the claims that are on appeal, claims 1 and 12 are independent. Claims 2-11 and 20 depend directly or indirectly from claim 1. Claims 13-19 and 21 depend directly or indirectly from claim 12. Claims 1-21 are set forth in the attached Appendix.

D. Status of Amendments

The Amendment After Final Rejection Under 37 C.F.R. §1.116 filed on December 30, 2003 amended claim 21. The Supplemental Advisory Action mailed February 3, 2004 and the Supplemental Advisory Action mailed April 1, 2004 both indicate that the Amendment After Final Rejection Under 37 C.F.R. §1.116 filed on December 30, 2003 was entered. Accordingly, Appellant considers the amendment to claim 21 to have been entered.

II. SUMMARY OF THE INVENTION AND APPLIED REFERENCES

A. The Invention

The present invention relates to an apparatus and method for counting pixels in regions of interest within data present on a data bus.

In the related art, limited processor and memory bandwidths limit the usefulness of low-cost printers, which need to handle large amounts of data to create high quality images. For example, color images today are generally printed at 600 spi or greater. Accordingly, to reduce the loads on both processing and memory resources, acquiring information about the image to be printed before printing occurs is useful (Page 1, lines 9-13).

For example, in thermal and ink jet printing, knowing where large areas of heavy ink coverage exist in an image prior to printing is extremely valuable. This information can be used to choose a print mode, a print speed, a drying time, or the like. Additionally, it may also be important to know where printing does not occur, so that a print head may skip the corresponding area, and thereby reduce loads on both processing and memory resources (Page 1, lines 14-19).

Gathering information about a print image prior to printing is a very processor-intensive operation. Additionally, choosing a point within the flow of the print data to gather the image information, such as pixel count, can require redundant shifting of data within a memory (Page 1, lines 21-24).

The present invention solves this problem by providing an apparatus and method for counting pixels in regions of interest within data present on a data bus. The data on the data bus includes active and inactive pixels. Image data is selectively read from the data present on the data bus. A pixel counter, coupled to the data bus, generates a pixel count based on the active pixels of the selectively read image data present on the data bus. This pixel count enables a printer to determine large areas of high ink coverage of a medium, which may require

slower printing to allow extra ink drying time as compared to areas of low ink coverage of a medium (Page 6, line 1 - page 7, line 2).

B. The Rejections

The final Office Action rejects claims 1-19 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent Application No. 09/433,941.

The final Office Action rejects claims 1-5, 18 and 19 under 35 USC §103(a) over U.S. Patent No. 6,038,340 to Ancin et al. (hereinafter, "Ancin") in view of U.S. Patent No. 5,287,452 to Newman.

The final Office Action rejects claim 11 under 35 USC §103(a) over Ancin in view of Newman and further in view of U.S. Patent No. 5,729,351 to Oh.

The final Office Action rejects claims 6-10 and 12-17 under 35 USC §103(a) over Ancin in view of Newman and further in view of U.S. Patent No. 6,145,947 to Inora et al. (hereinafter, "Inora").

C. The Applied References

1. U.S. Patent No. 6,038,340 to Ancin et al.

Ancin discloses "a system and method in a scanner for automatically detecting the black and white points of a color image" (col. 1, lines 9-11). As shown in Figs. 1-3 of Ancin, a communications interface 250 receives a digital image 285 from optical scanner electronics 110 and forwards the digital image 285 to a data storage device 260 or RAM 270 for image processing (col. 3, lines 37-41). Several programs are stored in the RAM 270, including an operating system 275 and a scanner application program 280. The scanner application program 280 includes a black and white point detector 290 and an image processor 295, which includes a pixel counter 320, as shown in Figs. 2-3. An image partitioning routine 310 divides the digital image 285 into a plurality of blocks, as discussed at col. 4, lines 10-15 of

Ancin. As disclosed at col. 4, lines 16-30, the pixel counter 320 selects a block from the digital image 285 stored in the RAM 270, and computes the number of black pixels and the number of white pixels in the selected block.

2. **U.S. Patent No. 5,287,452 to Newman**

Newman discloses a display system 23 for refreshing a display unit, comprising a display memory, a display and an interface, where the display memory stores image data. The interface receives image data and determines whether the received image data relates to stored image data that is usually stored in the display memory. Subsequently, the interface controls storage of the received image data in the display memory.

More specifically, a bus control interface 112 monitors a line 15 of a bus 12 for addresses in a selected region of virtual space. When the bus control interface 112 detects a virtual address meeting certain criteria, the bus control interface 112 causes a data buffer 114 to latch onto the data line 14. An address translator 204 translates the virtual address into a physical address to identify a storage location in the display memory 116 (RAM) for storing the data in the data buffer 114. The image data contained in display memory 116 is read therefrom under the control of a video control circuit 118 and addresses from an address generator 206 for transmission to a digital to analog conversion circuit 120. The digital to analog conversion circuit 120 converts the image data to RGB (red, green and blue) formatted data on separate lines for transmission to the display unit 28 (col. 4, line 52-col. 5, line 14 and Fig. 2 of Newman).

3. **U.S. Patent No. 5,729,351 to Oh**

Oh discloses a method and apparatus for generating and displaying a number of printed sheets of paper and the print ratio occupied by the number of black pixels on the paper in a printing apparatus (Abstract).

More specifically, a page memory contained in a RAM 215 has a memory capacity to store pixels of image data corresponding to one page. In order to determine the print ratio, the black pixels in the image data in RAM 215 corresponding to one page must be counted to determine the current print ratio of black pixels relative to the paper. A print control unit 211 or print processing unit 116 can contain the hardware of software to count the pixels stored in RAM 215. The print control unit 211 or print processing unit 116 contains a comparing unit for comparing the image data with a standard value set for each of the black pixels and each of the white pixels. The print control unit 211 or print processing unit 116 further includes a counting unit for counting the number of black pixels identified by the comparing unit, and an adding unit for adding the counted black pixels in the counting unit to each other (Fig. 1, Fig. 2, and col. 5, lines 34-61).

4. **U.S. Patent No. 6,145,947 to Inora et al.**

Inora discloses an ink consumption detection system in which a printer controller 103 reads an ink consumption counter from a memory 114 and adds print count values to the ink consumption counter to produce an updated ink consumption counter which is stored in memory 114.

More specifically, print data is transmitted from a host computer 20 to a printer 10 (Fig. 1). A printer controller 103 expands the print data into print image data with each bit indicating an ejection or non-ejection nozzle, and stores the print image data in a line buffer. The printer controller 103 divides the print image data in the line buffer into a plurality of blocks, each having a predetermined dot matrix. If a block has an ejection nozzle, then it is an effective block. The ink consumption of each effective block is set to a predetermined count value in order to calculate the number of effective blocks. The predetermined count value may be an average value which varies depending on the particular print head used. Based on the predetermined count value and the number of effective blocks, the printer

controller 103 converts the total ink consumption caused by the print operation into the print count value, and an updated ink consumption counter is restored onto the memory 114 (Fig. 1, Fig. 5, Fig. 6, and col. 5, lines 19-67).

III. THE ISSUES ON APPEAL

Appellant respectfully submits that the rejection of claims 1-19 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent Application No. 09/433,941 has been withdrawn. As stated in the Supplemental Advisory Action mailed April 1, 2004, "[d]ouble patenting rejection is withdrawn ...."

Because the final Office Action indicates that claims 20 and 21 contain allowable features, there are no issues raised with respect to these claims on appeal.

Thus, the issues on appeal are:

1. Whether, under 35 USC §103(a), claims 1-5, 18 and 19 would have been obvious over Ancin in view of Newman.

2. Whether, under 35 USC §103(a), claim 11 would have been obvious over Ancin in view of Newman and further in view Oh.

3. Whether, under 35 USC §103(a), claims 6-10 and 12-17 would have been obvious over Ancin in view of Newman and further in view Inora.

IV. GROUPING OF THE CLAIMS ON APPEAL

Each claim of this patent application on appeal is separately patentable, and upon issuance of a patent will be entitled to a separate presumption of validity under 35 U.S.C. §282. For convenience in handling of this appeal, the claims are grouped as follows:

Group I: Claims 1-5;

Group II: Claims 18-19;

Group III: Claim 11;

Group IV: Claim 12-13;

Group V: Claims 6-10 and 14-17; and

Group VI: Claims 20 and 21

Each of Groups I-VI are argued separately in the following arguments. Because there are no issues with respect to claims 20 and 21, these claims have been grouped together in Group VI. The Groups do not stand or fall together.

V. LAW

A. 35 U.S.C. §103(a) (Obviousness)

In rejecting claims under 35 U.S.C. 103, it is incumbent on the examiner to establish a factual basis to support the legal conclusion of obviousness. See, In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), including: (A) determining the scope and content of the prior art; (B) ascertaining the differences between the prior art and the claims in issue; (C) resolving the level of ordinary skill in the pertinent art; and (D) evaluating evidence of secondary considerations.

In rejecting claims, the Patent Office bears the initial burden of persuasion in establishing a *prima facie* case of obviousness. To achieve this, the Patent Office must show three criteria: a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine teachings; a reasonable expectation of success; and that the prior art must teach or suggest all claimed limitations. See In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See also MPEP §2143.

Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal

Inc. v. F-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note, In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992).

A showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232(Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." See Dembiczak, 175 F.3d at 1000, 50 USPQ2d at 1617. However, the suggestion to combine need not be express and "may come from the prior art, as filtered through the knowledge of one skilled in the art." Motorola, Inc. v. Interdigital Tech. Corp., 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489(Fed. Cir. 1997).

It is impermissible for an Examiner to engage in hindsight reconstruction of the claimed invention using appellant's structure as a template and selecting elements from references to fill the page. The references themselves must provide some teaching whereby the appellant's combination would have been obvious. In re Gorman, 911 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). That is, something in the prior art as a whole must suggest the desirability, and thus obviousness, of making the combination. See In re Beattie, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992); Lindemann Machinenfabrik

GMBH v. American Hoist and Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984).

The test for obviousness is what the combined teachings would have suggested to one of ordinary skill in the art. See, In re Young, 927 F.2d 588, 591, 18 USPQ2d 1989, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). More specifically, as stated by the court in Keller, 642 F.2d at 425, 208 USPQ at 881, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary references; nor is it that the claimed invention must be expressly suggested in one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. Moreover, the artisan is not compelled to blindly adopt every single aspect of the teachings of any one reference without the exercise of independent judgment, see Lear Siegler, Inc. v. Aeroquip Corp., 733 F.2d 881, 889, 221 USPQ 1025, 1032 (Fed. Cir. 1984).

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Further, analyzing the claimed invention as a whole in view of the prior art as a whole, one indicium of nonobviousness is a "teaching away" from the claimed invention by the prior art at the time the invention was made. See U.S. v. Adams, 148 USPQ 479 (1966). Essentially, teaching away from a claimed invention is a per se demonstration of lack of prima facie obviousness.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

As discussed in §2143.01 of the Manual of Patent Examining Procedure (MPEP), "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000)."

In addition, a preamble of a claim constitutes a limitation in the claims when the preamble is more than a mere statement of purpose and the language in the preamble is essential to particularly pointing out the invention defined in the claims. "Whether a preamble of intended purpose constitutes a limitation to the claims is ... determined on the facts of each case in view of the claimed invention as a whole." In re Stencel, 828 F.2d 751, 4 USPQ2d 1071 (Fed. Cir. 1987). As discussed in §2111.02 of the Manual of Patent Examining Procedure (MPEP), "Any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. See, e.g., Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989)."

Further, there is a presumption that a claim term carries its ordinary and customary meaning. E-Pass Technologies, Inc. v. 3COM, Inc., 67 USPQ2d (Fed. Cir. 2003).

VI. ARGUMENTS

A. Claims 1-5, 18 and 19 Are Not Rendered Obvious By Ancin and Newman

The final Office Action rejects claims 1-5, 18 and 19 under 35 U.S.C. §103 over Ancin in view of Newman. This rejection is improper and should be reversed.

Group I: Claims 1-5

Ancin and Newman, taken separately or in combination, do not disclose, teach or suggest "[a]n apparatus that counts pixels in regions of interest within data present on a data bus, the data on the data bus including image data having active and inactive pixels, the apparatus comprising a pixel counter, coupled to the data bus, that selectively reads the image data from the data on the data bus and that generates a pixel count based on the active pixels of the image data," as recited in claim 1 from which claims 2-5 directly or indirectly depend.

Ancin discloses "a system and method in a scanner for automatically detecting the black and white points of a color image" (col. 1, lines 9-11). As shown in Figs. 1-3 of Ancin, a communications interface 250 receives a digital image 285 from optical scanner electronics 110 and forwards the digital image 285 to a data storage device 260 or RAM 270 for image processing (col. 3, lines 37-41). The RAM 279 includes a scanner application program 280. The scanner application program 280 includes a black and white point detector 290 and an image processor 295, which includes a pixel counter 320, as shown in Figs. 2-3. An image partitioning routine 310 divides the digital image 285 into a plurality of blocks, as discussed at col. 4, lines 10-15 of Ancin. As disclosed at col. 4, lines 16-30, the pixel counter 320 selects a block from the digital image 285 stored in the RAM 270, and computes the number of black pixels and the number of white pixels in the selected block.

Ancin does not disclose, "[a]n apparatus that counts pixels in regions of interest within data present on a data bus" and "a pixel counter ... that selectively reads the image data from the data on the data bus and that generates a pixel count based on the active pixels of the image data," as recited in independent claim 1. Instead, Ancin writes all of the data to a RAM 270 and all of the data is processed in the RAM 270.

As discussed above, there is a presumption that a claim term carries its ordinary and customary meaning. E-Pass Technologies, Inc. v. 3COM, Inc., 67 USPQ2d (Fed. Cir. 2003).

The American Heritage College Dictionary, Fourth Edition, 2002 defines the term "present" as "[a] moment or period in time perceptible as intermediate between past and future; now." The American Heritage College Dictionary, Fourth Edition, 2002 defines the term "on" as "[u]sed to indicate location at or along."

Accordingly, "[a]n apparatus that counts pixels in regions of interest within data present on a data bus," indicates that the pixels to be counted are now located within data located at a data bus.

Further, claim 1 recites "the data on the data bus including image data having active and inactive pixels" and "a pixel counter, coupled to the data bus, that selectively reads the image data from the data on the data bus and that generates a pixel count based on the active pixels of the image data." Therefore, the image data now located on the data bus has active and inactive pixels and is selectively read by a pixel counter. The pixel counter generates a pixel count based on the active pixels of the image data.

Because the preamble refers to the location of data including image data, the preamble refers to more than an intended purpose, and the language in the preamble is essential to particularly pointing out the invention defined in the claims. Therefore, as discussed in §2111.02 of the Manual of Patent Examining Procedure (MPEP) above, the preamble must be treated as a limitation in the claim.

Because Ancin sends all of the data to the RAM 270 and then processes only data stored in the RAM 270, Ancin cannot disclose, "[a]n apparatus that counts pixels in regions of interest within data present on a data bus," and Ancin cannot disclose "a pixel counter ... that selectively reads the image data from the data on the data bus and that generates a pixel count based on the active pixels of the image data."

The final Office Action mailed November 5, 2004 states: "However, Ancin et al. does not clearly disclose reading the image data selectively." Appellant agrees.

However, the final Office Action asserts that Newman discloses image data selected from a data bus based on starting and ending addresses (col. 7, lines 28-51).

Newman discloses a display system for refreshing a display, comprising a display memory, a display and an interface, where the display memory stores image data. The interface receives image data and determines whether the received image data relates to stored image data that is usually stored in the display memory. Subsequently, the interface controls storage of the received image data in the display memory. More specifically, a bus control interface 112 monitors a line 15 of a bus 12 for addresses in a selected region of virtual space. When the bus control interface 112 detects a virtual address meeting certain criteria, the bus control interface 112 causes a data buffer 114 to latch onto the data lines 14. An address translator 204 translates the virtual address into a physical address to identify a storage location in the display memory 116 (RAM) for storing the data in the data buffer 114 (col. 4, line 57-col. 5, line 14 of Newman).

The final Office Action asserts, "Ancin and Newman are analogous art because they are from the same field of endeavor that is counting of black pixels on a bus and saving the count data for further processing." Appellant respectfully disagrees.

Newman is directed toward an improved computer video display system. Newman specifically "provides an improved system for displaying an image in a computer system in such a manner as to not interfere with the access to a system memory by a CPU even during refresh or update operations to the display memory," (col. 2, lines 22-27). Appellant respectfully submits that Newman does not even refer to "black pixels" or the counting of pixels. Further, Newman does not disclose a device for counting pixels. Therefore, Newman does not relate to "counting of black pixels on a bus and saving the data for further processing" as asserted by the final Office Action.

One having ordinary skill in the art would not have been motivated to combine Newman's display system with Ancin's scanner system, because Ancin and Newman are directed toward solving different problems. Ancin's scanner system is directed toward capturing an image using an optical scanner and writing digital data from the optical scanner to a data storage device or RAM for further image processing. Newman is directed toward monitoring a data bus which interconnects a display memory, a processor, and a system memory, so that Newman can update the display memory and the system memory simultaneously (col. 2, lines 22-40).

Moreover, Ancin teaches away the modification proposed by the final Office Action allegedly based on Newman. Ancin's scanner system is directed toward writing digital data from an optical scanner 110 to a data storage device 260 or RAM 270 for further image processing. In order to process the image data, including determining whether to count a red, green and blue pixel as a black pixel or a white pixel, Ancin requires all digital image data to be partitioned into image blocks. Thus, Ancin requires a complete transfer of all digital image data from the optical scanner 110 to the RAM 270 to be able to divide the digital image data into blocks prior to performing the image processing, including making a determination as to whether a pixel is a black pixel or a white pixel. Therefore, Ancin teaches away from selectively reading image data from the data on the data bus.

Accordingly, for the reasons discussed above, it is respectfully submitted the rejection of claims 1-5 under 35 U.S.C. §103 over Ancin in view of Newman is improper and should be reversed.

Group II: Claims 18 and 19

The final Office Action rejects claims 18 and 19 under 35 U.S.C. §103 over Ancin in view of Newman. This rejection is improper and should be reversed.

Claims 18 and 19 depend directly or indirectly from claim 12. Because the Office Action did not reject claim 12 under 35 U.S.C. §103 as unpatentable over the combination of Ancin and Newman, the rejection of claims 18 and 19 is improper. Moreover, because claim 12 is distinguishable from Ancin in view of Newman as discussed infra, claims 18 and 19 are also patentably distinguishable from Ancin in view of Newman for at least the same reasons presented with respect to claim 12.

Accordingly, it is respectfully submitted the rejection of claims 18 and 19 under 35 U.S.C. §103 over Ancin in view of Newman is improper and should be reversed.

B. Claims 11 is Not Rendered Obvious By Ancin, Newman and Oh

The final Office Action rejects claim 11 under 35 U.S.C. §103 over Ancin in view of Newman and further in view Oh. This rejection is improper and should be reversed.

Oh is cited only for its disclosure of an adding unit (col. 5, lines 43-61). Thus, Oh does not make up for the deficiencies of Ancin and Newman with respect to claim 1. Therefore, the asserted combination of Ancin in view of Newman and Oh cannot render obvious claim 11 which depends from claim 1.

Accordingly, for the reasons discussed above, it is respectfully submitted the rejection of claim 11 under 35 U.S.C. §103 over Ancin in view of Newman and further in view Oh is improper and should be reversed.

C. Claims 6-10 and 12-17 Are Not Rendered Obvious By Ancin, Newman and Inora

The final Office Action rejects claims 6-10 and 12-17 under 35 U.S.C. §103 over Ancin in view of Newman and further in view of Inora. This rejection is improper and should be reversed.

Group IV: Claims 12 and 13

Page 8 of the Office Action asserts: "Regarding claims 12 and 13, arguments analogous to those presented for claim 1 and 2, are applicable." However, as noted above, the final Office Action does not reject claims 12 and 13 under 35 U.S.C. §103 over Ancin in view of Newman. Appellant respectfully disagrees with such an assertion.

Because the Office Action did not reject claims 12 and 13 under 35 U.S.C. §103 as unpatentable over the combination of Ancin and Newman, the final Office Action has conceded that claims 12 and 13 are patentably distinguishable over this combination of Ancin and Newman. In addition, the final Office Action does not provide any rational for rejecting claims 12 and 13 based upon Ancin in view of Newman and further in view of Inora. Accordingly, Appellant respectfully submits that Inora does not overcome the deficiencies of the combination of Ancin and Newman discussed above.

Moreover, Appellant respectfully submits that claims 12 and 13 are patentably distinguishable from the combination of Ancin in view of Newman.

Ancin and Newman, taken separately or in combination, do not disclose, teach or suggest "[a] method for counting pixels in regions of interest within data on a data bus in a printer using an independent pixel counter connected to the data bus," as recited in claim 12.

As discussed above, there is a presumption that a claim term carries its ordinary and customary meaning. E-Pass Technologies, Inc. v. 3COM, Inc., 67 USPQ2d (Fed. Cir. 2003). The American Heritage College Dictionary, Fourth Edition, (2002) defines the term "on" as "[u]sed to indicate location at or along."

Because the preamble refers to the location of data and the connection of structures such as a printer and an independent pixel counter, the preamble refers to more than an intended purpose and the language in the preamble is essential to particularly pointing out the invention defined in the claims. Therefore, as discussed in §2111.02 of the Manual of Patent

Examining Procedure (MPEP) above, the preamble must be treated as a limitation in the claim.

Accordingly, the recitation of "[a] method for counting pixels in regions of interest within data on a data bus" indicates that the pixels to be counted are located within data located at a data bus. In addition, claim 12 recites, "selectively reading ... image data on the data bus" and "generating, in the independent pixel counter, a pixel count based on the active bits of the read image data."

As discussed above, Ancin writes all of the data to a RAM 270 and all of the data is processed in the RAM 270. Thus, Ancin does not teach counting pixels within data on a databus. Furthermore, as conceded by the final Office Action, "Ancin does not clearly disclose reading the image data selectively."

Newman cannot properly be used to make up for the deficiencies of Ancin. For the reasons discussed above, Appellant respectfully submits that the asserted combination is improper and that one of ordinary skill in the art would not have been motivated to combine Ancin and Newman, let alone to modify Ancin contrary to its own teachings.

Group V: Claims 6-10 and 14-17

Inora is cited only for its disclosure of scan lines including pixel blocks containing pixels (Fig. 6 and col. 5, lines 19-67). Thus, Appellant respectfully submits that Inora does not make up for the deficiencies of Ancin and Newman with respect to claims 1 and 12. Therefore, the asserted combination of Ancin, Newman and Inora cannot render obvious the subject matter of claims 6-10 (which depend directly or indirectly from claim 1) or the subject matter of claims 14-17 (which depend directly or indirectly from claim 12).

Accordingly, for the reasons discussed above, it is respectfully submitted the rejection of claims 6-10 and 12-17 under 35 U.S.C. §103 over Ancin in view of Newman and further in view Inora is improper and should be reversed.

D. Claims 20 and 21 Contain Allowable Features

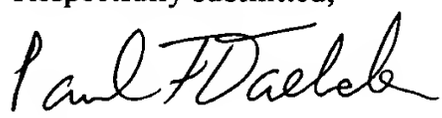
The final Office Action objects to claims 20 and 21 as being dependent upon independent rejected base claims 1 and 12, respectively. In view of the patentability of claims 1 and 12, this objection is rendered moot.

VII. CONCLUSION

The objections and rejections set forth in the final Office Action should be reversed, at least for the reasons set forth above.

The Honorable Board is requested to reverse the objections and rejections set forth in the Final Rejection and to pass this application to issuance.

Respectfully submitted,



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DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 24-0037

Enclosure:
Appendix A

APPENDIX A

CLAIMS:

1. An apparatus that counts pixels in regions of interest within data present on a data bus, the data on the data bus including image data having active and inactive pixels, the apparatus comprising a pixel counter, coupled to the data bus, that selectively reads the image data from the data on the data bus and that generates a pixel count based on the active pixels of the image data.

2. The apparatus according to claim 1, wherein the pixel counter includes:

a pixel count controller coupled to the data bus that determines whether the data on the data bus is image data based on the image data identifying portion;

a counter coupled to the pixel count controller that counts the active pixels of the image data; and

a memory, coupled to the pixel counter controller and the counter, that stores the pixel count.

3. The apparatus according to claim 1, wherein the data on the data bus includes a data portion, a memory address portion, and an image data identifying portion.

4. The apparatus according to claim 3, wherein the image data identifying portion is an image data flag that indicates whether the data on the data bus is image data.

5. The apparatus according to claim 3, wherein:

the image data identifier portion includes an address; and

when the image data identifier portion is the address of an image data memory connected to the bus, the pixel counter determines that the data on the data bus is image data.

6. The apparatus according to claim 1, wherein the image data is grouped into a scan line, the scan line comprising at least one row of pixels extending across an image.

7. The apparatus according to claim 6, wherein each scan line is divided into a plurality of frames, each of the frames comprising a predetermined number of consecutive pixels of the scan line.

8. The apparatus according to claim 7, wherein the plurality of frames are further divided into a plurality of pixel blocks, each of the pixel blocks comprising a predetermined number consecutive pixels of a frame.

9. The apparatus according to claim 7, wherein:

the pixel counter generates the pixel count based on the pixel count in each of the frame; and

a memory separately stores the active count of each frame.

10. The apparatus according to claim 6, wherein the pixel counter generates the pixel count based on the active pixels of each of the scan lines.

11. The apparatus according to claim 1, wherein the pixel counter comprises:

an adder that receives image data and counts the active pixels present in the image data;

a frame counter that measures the amount of image data being added by the adder and instructs a memory to read the active pixel count from the adder and store the read pixel count when a frame of image data has been counted.

12. A method for counting pixels in regions of interest within data on a data bus in a printer using an independent pixel counter connected to the data bus, the data on the data bus including image data having active and inactive pixels, the method comprising:

monitoring the data bus for data;

selectively reading, in response to an image data identifying portion of the address on the address bus, image data on the data bus;

generating, in the independent pixel counter, a pixel count based on the active bits of the read image data; and

outputting the pixel count from the independent pixel counter.

13. The method according to claim 12, wherein selectively reading the image data comprises selectively reading the image data from the data bus based on an active image data flag portion of the data on the data bus.

14. The method according to claim 12, wherein the image data is grouped into a scan line, the scan line comprising a single row of pixels extending across a width of an image.

15. The method according to claim 14, wherein each scan line is divided into a plurality of frames, each of the frames comprising a predetermined number of consecutive pixels of the scan line.

16. The method according to claim 14, wherein the plurality of frames are further divided into a plurality of pixel blocks, each of the pixel blocks comprising a predetermined number of consecutive pixels of a frame.

17. The method according to claim 14, wherein generating the pixel count comprises generating the pixel count based on the pixel count in each of the frames, and separately storing the pixel count of each frame.

18. The method according to claim 12, wherein selectively reading the image data comprises selectively reading the image data from the data bus based on an address in the image data identifying portion of the data on the data bus.

19. The method according to claim 18, wherein the data on the data bus is image data if the address is the address of a memory.

20. The apparatus according to claim 1, wherein the image data on the data bus is directly read from the data bus to be provided to the pixel counter coupled to the data bus.

21. The method of claim 12, wherein selectively reading the image data on the data bus comprises selectively and directly reading the image data from the data bus and providing the image data read from the database to the independent pixel counter.